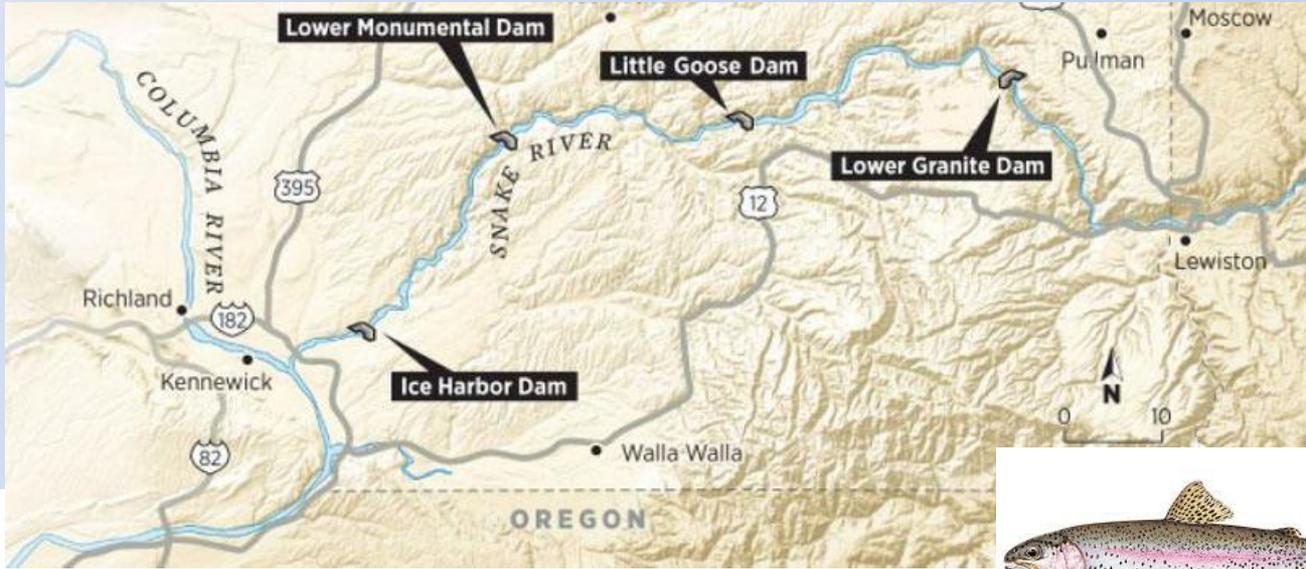


Lower Snake River Compensation Plan Program



Chinook Salmon
Genus and species:
Oncorhynchus tshawytscha

© Joseph R. Tomelleri



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

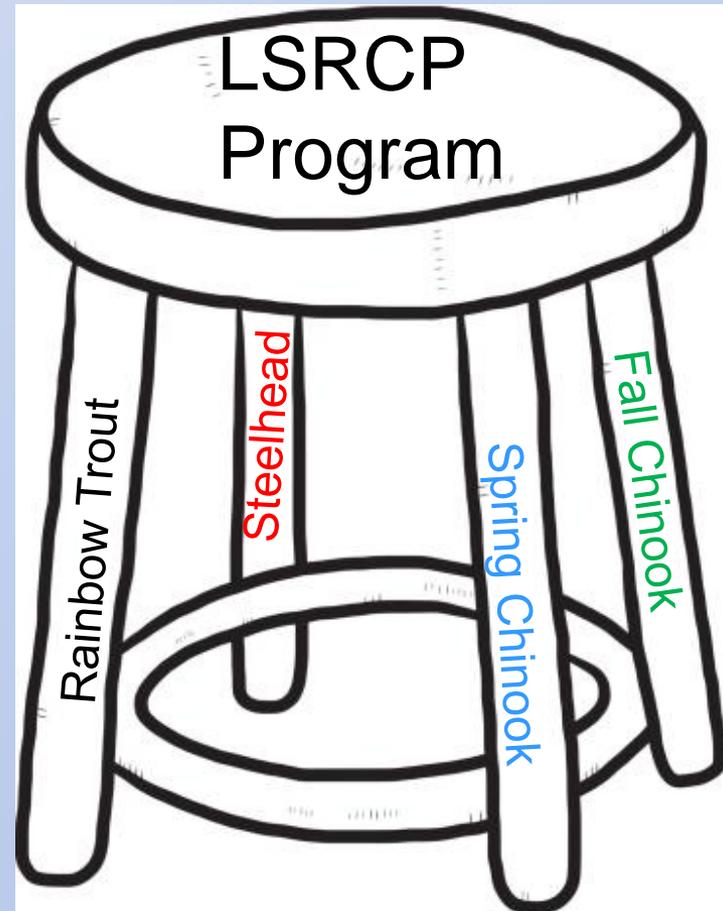
CONSERVING AMERICA'S Fisheries

Conserving America's Fisheries



Lower Snake River Compensation Plan Program

- History/Background
- Implementation and Program Delivery
- Important Changes since LSRCP began
- Performance



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

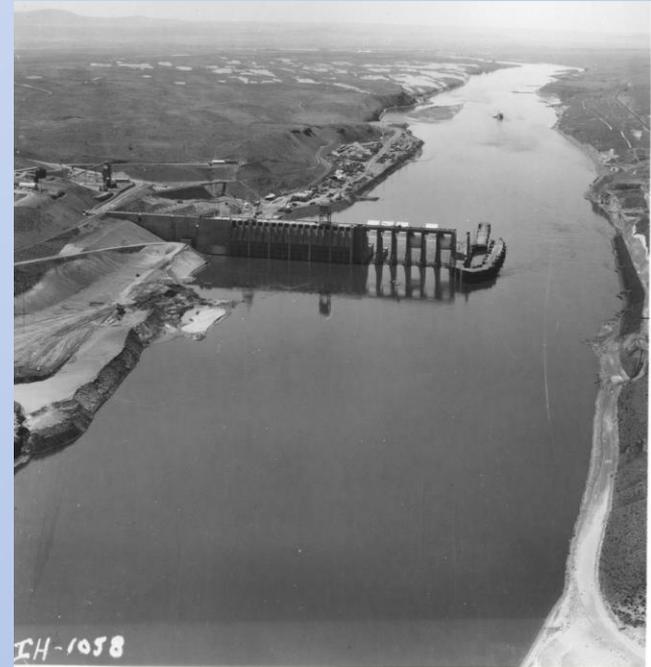
CONSERVING AMERICA'S Fisheries

Conserving America's Fisheries



History

- 1945
 - Congressional Approval for 4 dams on the Lower Snake River
- 1972
 - Fish and Wildlife Coordination Act Report
- 1975
 - COE/Agency Special Report to Congress
 - Mitigation Goals Established
- 1976
 - Environmental Impact Assessment
 - Congressional Authorization of the LSRCP Program under the 1976 Water Resources Development Act
- 1983
 - Start of Implementation
- After 1983Adjustments



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

CONSERVING
AMERICA'S
Fisheries

Conserving America's Fisheries

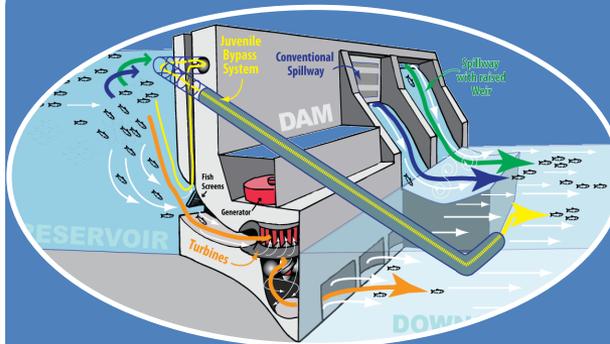


History



Escapement

- Adult Estimates Pre-Dams
 - Sp/Su Chinook = 122,000+
 - Steelhead = 114,800+
 - Fall Chinook = 37,700+*



Hydro system Loss

- Construction/Operations
- 48% fish loss
- Project Area goals



Harvest/Habitat Loss

- Habitat (spawning)
- Harvest
 - Varies by species
 - 2:1 Steelhead
 - 4:1 Chinook

Spring Chinook Total Adults = 58,700 + (176,100 + 58,700) = 293,500



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

CONSERVING AMERICA'S Fisheries

Conserving America's Fisheries



History

Species	Project Area Goals	Harvest/Habitat Goals	Total Production Goals
Fall Chinook	18,300	73,200	91,500
Spring/Summer Chinook	58,700	234,800	293,500
Steelhead	55,100	110,200	165,300
Rainbow Trout	86,000 pounds stocked		

- Project Area goals are primary focus.
- Harvest levels at the time, particularly downstream of project area reflected in Total Production.



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office



Conserving America's Fisheries



Implementation

Table 2. Allocation of Compensation (Adults) by State as Suggested by CBFTC, November 2, 1973. Not to be used as an indicator of specific release sites.

Area	Washington			Oregon		Idaho	
	Spring Chinook	Fall Chinook	Steelhead	Spring Chinook	Steelhead	Spr. & Sum. Chinook	Steelhead
Snake River							
Below Lewiston		5,000					
Lewiston-Hells Canyon		9,728	2,208				
Hells Canyon Dam		3,648			1,368 ^{1/}	1,200	1,368 ^{1/}
Tucannon River	1,152		1,632				
Clearwater River		68				288	20,736
Asotin Creek			816				
Grande Ronde River				5,856	7,632		
Salmon River						46,656	16,896
Imnaha River		68		3,216	1,920		
Small tributaries					264 ^{1/}	288	264 ^{1/}
Total	1,152	18,512	4,656	9,072	11,184	48,432	39,264

^{1/} Young of these fish not to be released in Snake River because of conflict with IPC compensation program. Release sites to be determined by states of Idaho and Oregon.



U.S. Fish and Wildlife Service

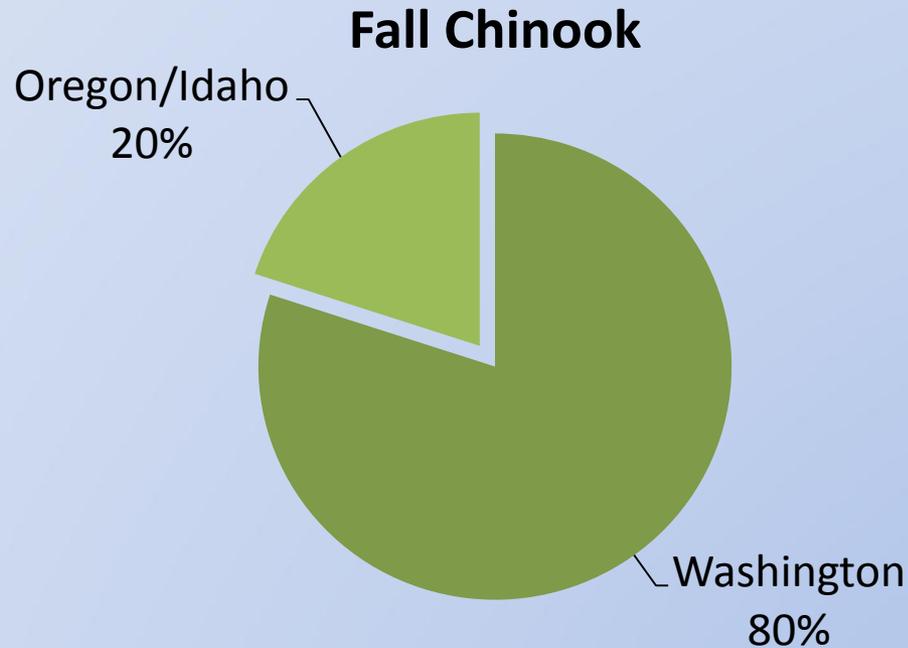
Lower Snake River Compensation Plan Office



Conserving America's Fisheries



Implementation



U.S. Fish and Wildlife Service

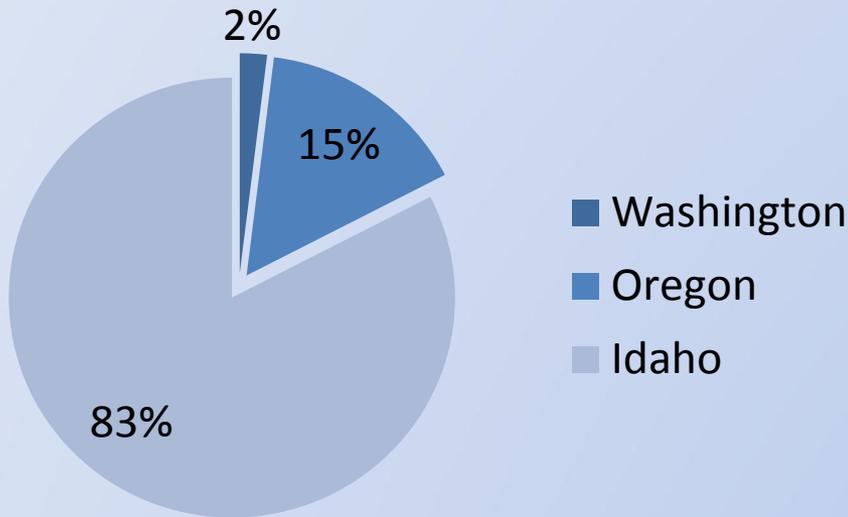
Lower Snake River Compensation Plan Office

Conserving America's Fisheries

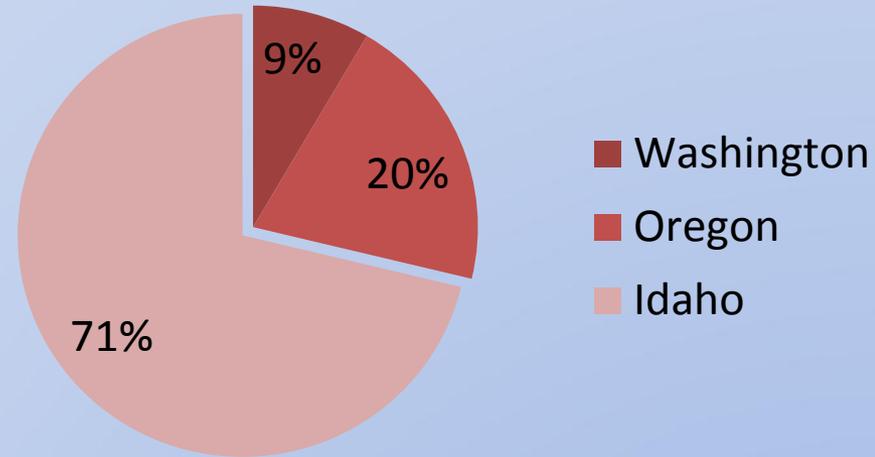


Implementation

Spring/Summer Chinook



Steelhead



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

Conserving America's Fisheries



Implementation

TABLE 8

HATCHERY REQUIREMENTS NECESSARY TO PRODUCE THE REQUIRED NUMBERS
OF ADULT CHINOOK SALMON AND STEELHEAD TROUT
(Northwest Fish & Wildlife Agencies)

	Fall Chinook	Spring & Summer Chinook	Summer Steelhead
Adult Loss Level for Basing Hatchery Size	18,300 ^{1/}	58,700	55,100
Percent Survival, Smolt to Adult	0.20	0.87	0.50
Number of Smolts	9,160,000	6,750,000	11,020,000
Smolts per Pound (Weight)	90	15	8
2016 Number of Smolts	3,198,304	9,950,602	5,720,136
2016 Fish/lb	23.4	18.7	4.6



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

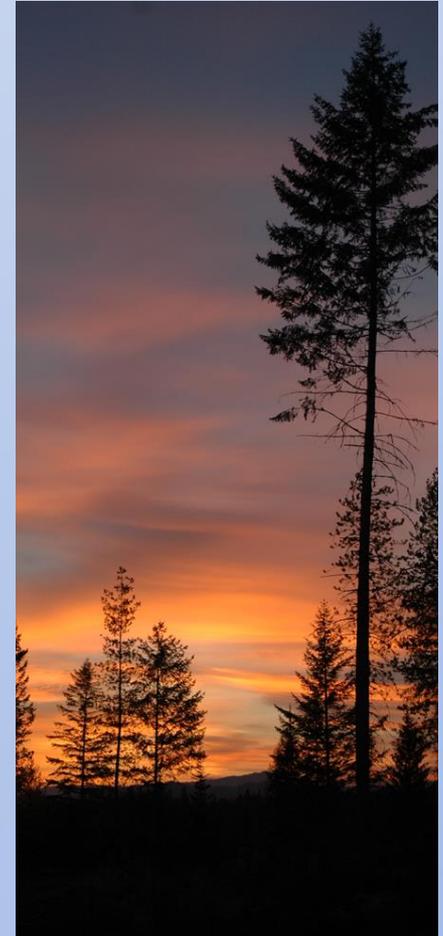


Conserving America's Fisheries



LSRCP Program Delivery

- The U.S. Army Corps of Engineers constructed all the fish facilities. Locating hatcheries guided by desire to replace lost salmon, steelhead & trout “in place and in kind”.
- The Fish and Wildlife Service owns the facilities and administers the program.
- States, tribes and the FWS operate the hatcheries and conduct fisheries monitoring and evaluations(and more).
- The Bonneville Power Administration funds the Lower Snake River Compensation Plan through a Memorandum of Agreement (MOA)



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

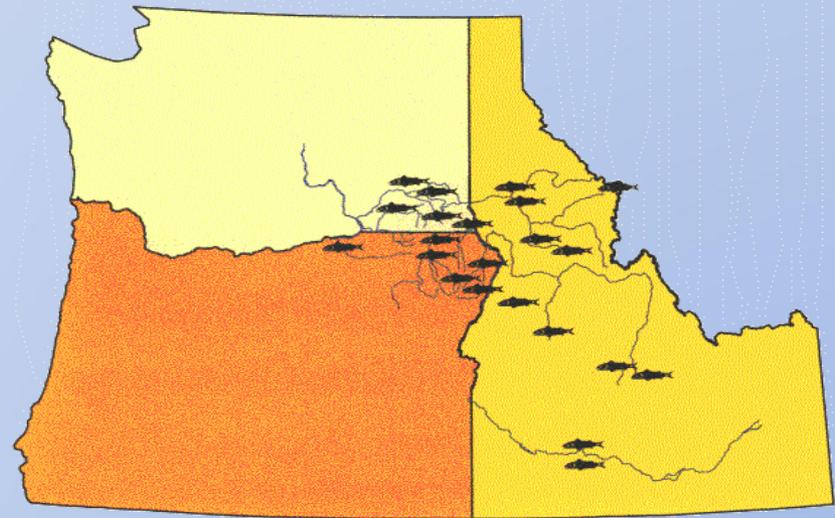
CONSERVING
AMERICA'S
Fisheries

Conserving America's Fisheries



LSRCP Fish Facilities

- Oregon
 - Lookingglass (Imnaha)
 - Wallowa (Little Sheep Cr, Big Canyon)
 - Irrigon
 - Washington
 - Lyons Ferry (Cotton & Dayton Pond)
 - Tucannon (Curl Lk)
 - Snake River Lab
 - Idaho
 - Clearwater (Crooked River, Red River, Powell)
 - Magic Valley
 - Hagerman NFH
 - McCall (S. Fork)
 - Sawtooth (E. Fork)
 - Captain Johns, Pittsburg. & Big Canyon
 - IDFG Fish Health Lab
- 26 Facilities located in three states
 - Present value of assets (less land) is >\$400 million
 - Constructed from 1980-1991
 - Present value of equipment is \$12.9 million



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

Conserving America's Fisheries

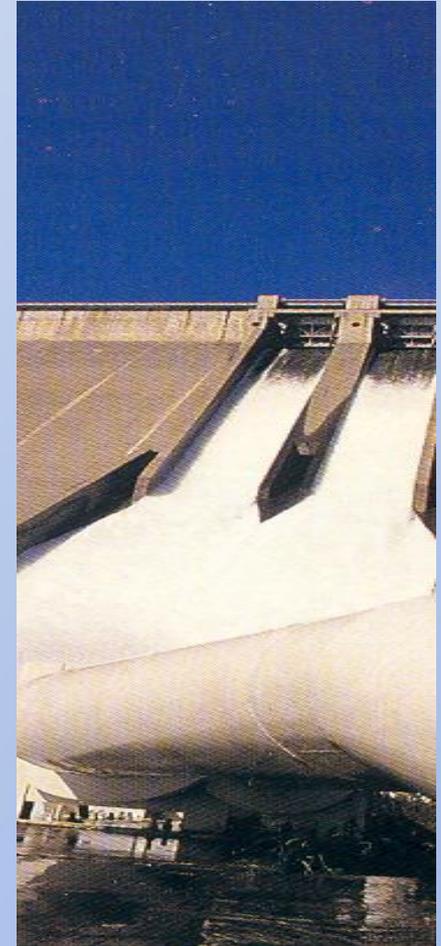


LSRCP Program Delivery

Current program focus:

- **Operations:** include collection/trapping/spawning of broodstock, rear and release healthy fish while meeting local, state and federal standards, and facility operations.
- **Evaluations:** include evaluation and monitoring success in meeting mandated goals and provide data needed to secure ESA permits.
- **Non-recurring maintenance:** fixes broken assets, ensures assets comply with regulations, replaces equipment, preventative maintenance and mission requirements

12



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

CONSERVING
AMERICA'S
Fisheries

Conserving America's Fisheries



Other LSRCP Program focus areas

Integrated programs :

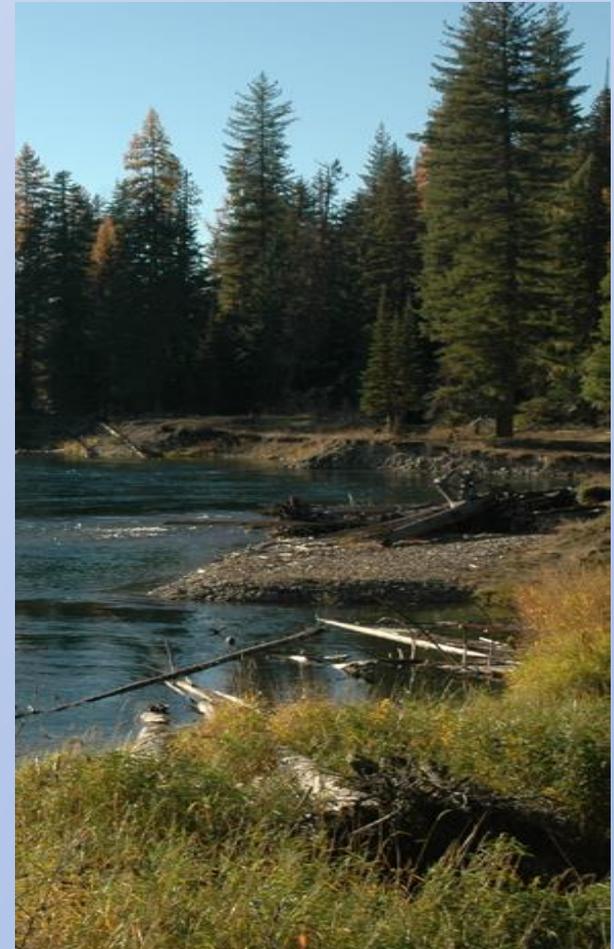
- Sp. Chinook – NE Oregon, Tucannon, McCall, Sawtooth
- Snake River Fall Chinook
- Steelhead -Touchet, Tucannon, Clearwater, E. Fork Salmon

Juvenile supplementation strategies – increase natural stock abundance & distribution:

- 47% of fall Chinook (2.1 million fish)
- 31% of steelhead (1.7 million fish)
- 34% of spring Chinook (2.8 million fish)

Out-planting adults to spawn naturally to increase abundance and distribution

FINS Database support and development



13



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

CONSERVING AMERICA'S Fisheries

Conserving America's Fisheries



LSRCP Cooperators

- *CTUIR, NPT, SBT*
- *IDFG, ODFW, WDFW*
- *USFWS, NOAA, BPA, ACOE*
- *IPC, PSMFC*



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office



Conserving America's Fisheries



Important Changes since 1976 LSRCP Program Began

- SAS rates have been less than originally projected
- ESA Listing of Snake River Spring and Fall Chinook in 1992. Steelhead in 1997
- US v. Oregon Fishery Management Agreement established specific fishery production agreements among states, tribes and federal agencies
- HSRG, ISRP hatchery program reviews have directed some program changes
- Reimbursable Agreement for program funding with BPA



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

CONSERVING
AMERICA'S
Fisheries

Conserving America's Fisheries



Performance



U.S. Fish and Wildlife Service

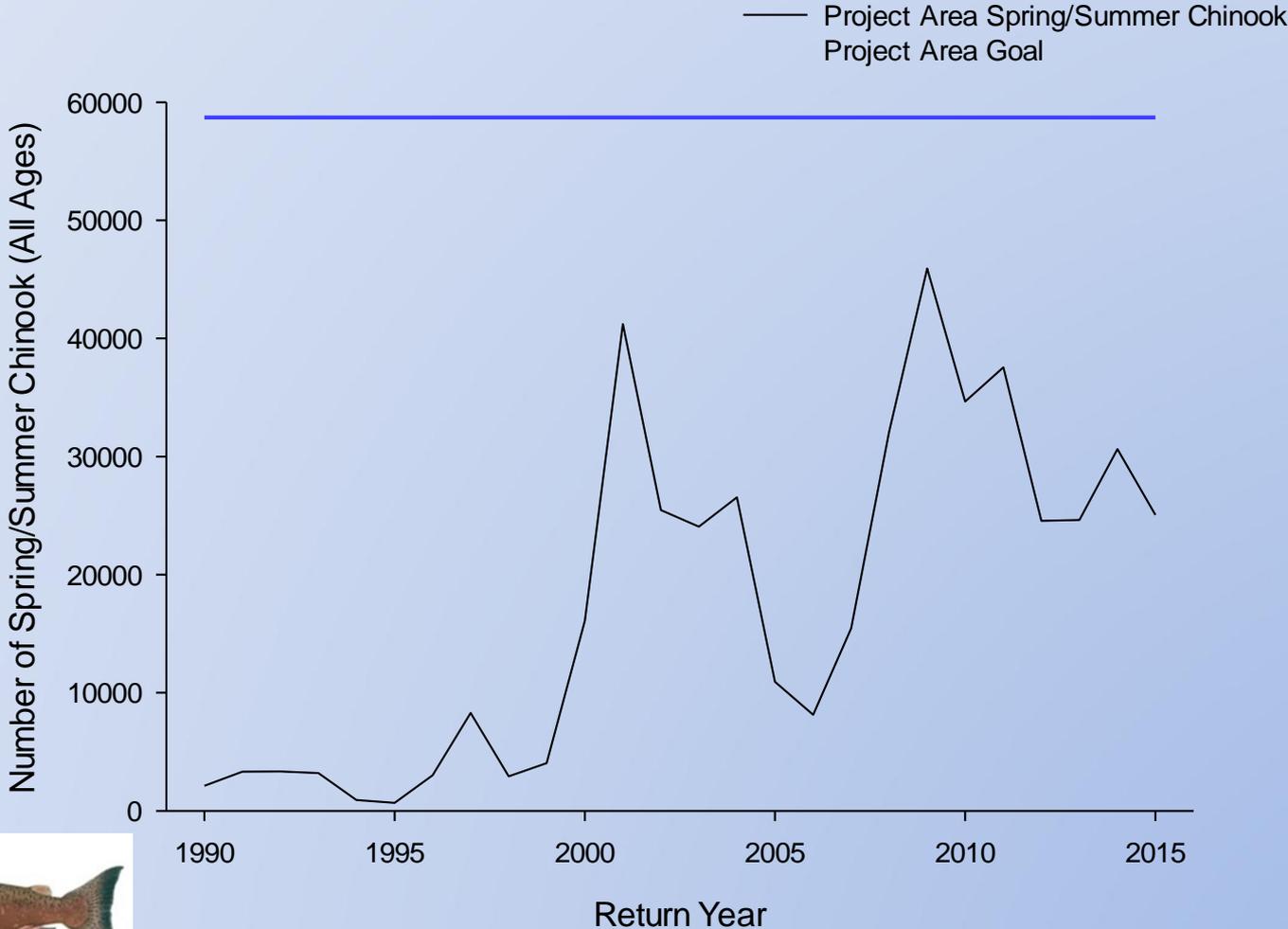
Lower Snake River Compensation Plan Office



Conserving America's Fisheries



Project Area Spring/Summer Chinook Return Years 1990-2015



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office



Conserving America's Fisheries



Performance

Facility	Release Groups	Total Adult Return	Total Num. Released	Avg. SAS (%)
Clearwater	115	81,275	30,628,277	0.265
Dworshak NFH	12	67,915	12,719,555	0.534
Lookingglass	90	111,165	12,314,396	0.903
McCall	21	115,729	13,442,178	0.861
Sawtooth	25	42,433	11,599,101	0.366
Tucannon	23	4,357	2,190,533	0.199
Grand Total	286	422,873	82,894,040	0.510

BY2000-2011, through 2016 return.



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office



Conserving America's Fisheries



Performance

Release Site (Facility)	Release Groups	Total Adult Return	Total Num. Released	Avg. SAS (%)	Comments
Imnaha River (Lookingglass)	12	48,701	4,425,582	1.100	
Lostine River (Lookingglass)	22	27,740	2,526,918	1.098	Both Captive and Conventional
Lookingglass Creek (Lookingglass)	12	13,276	1,404,276	0.945	
Knox B. (McCall)	18	115,563	13,253,057	0.872	Integrated (few) and Segregated Releases
Dworshak NFH (on-station)	12	67,915	12,719,555	0.534	

BY2000-2011, returns through 2016, at least 12 releases/groups.



U.S. Fish and Wildlife Service

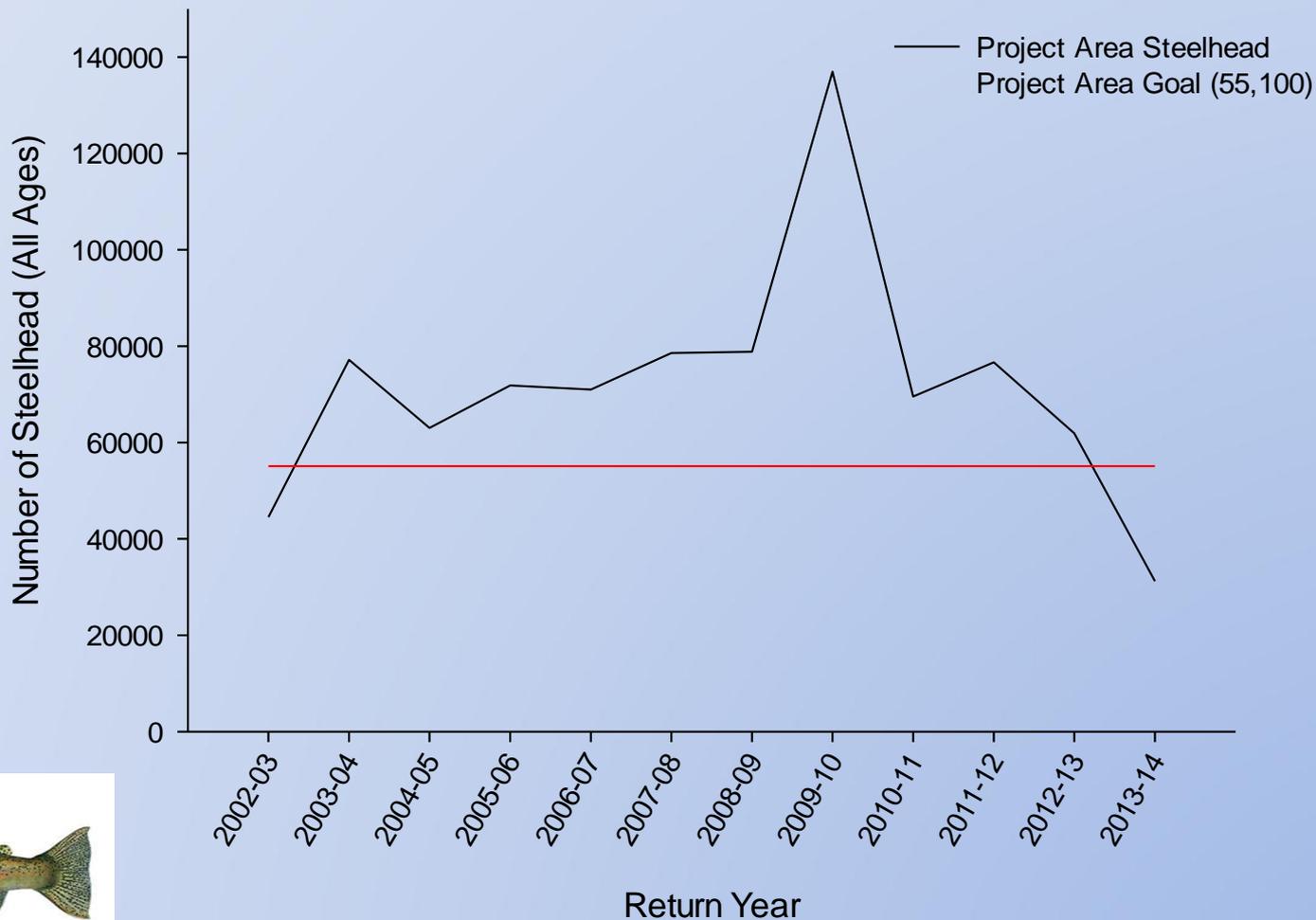
Lower Snake River Compensation Plan Office



Conserving America's Fisheries



Project Area Steelhead Returns Return Years 2002-03 Through 2013-14



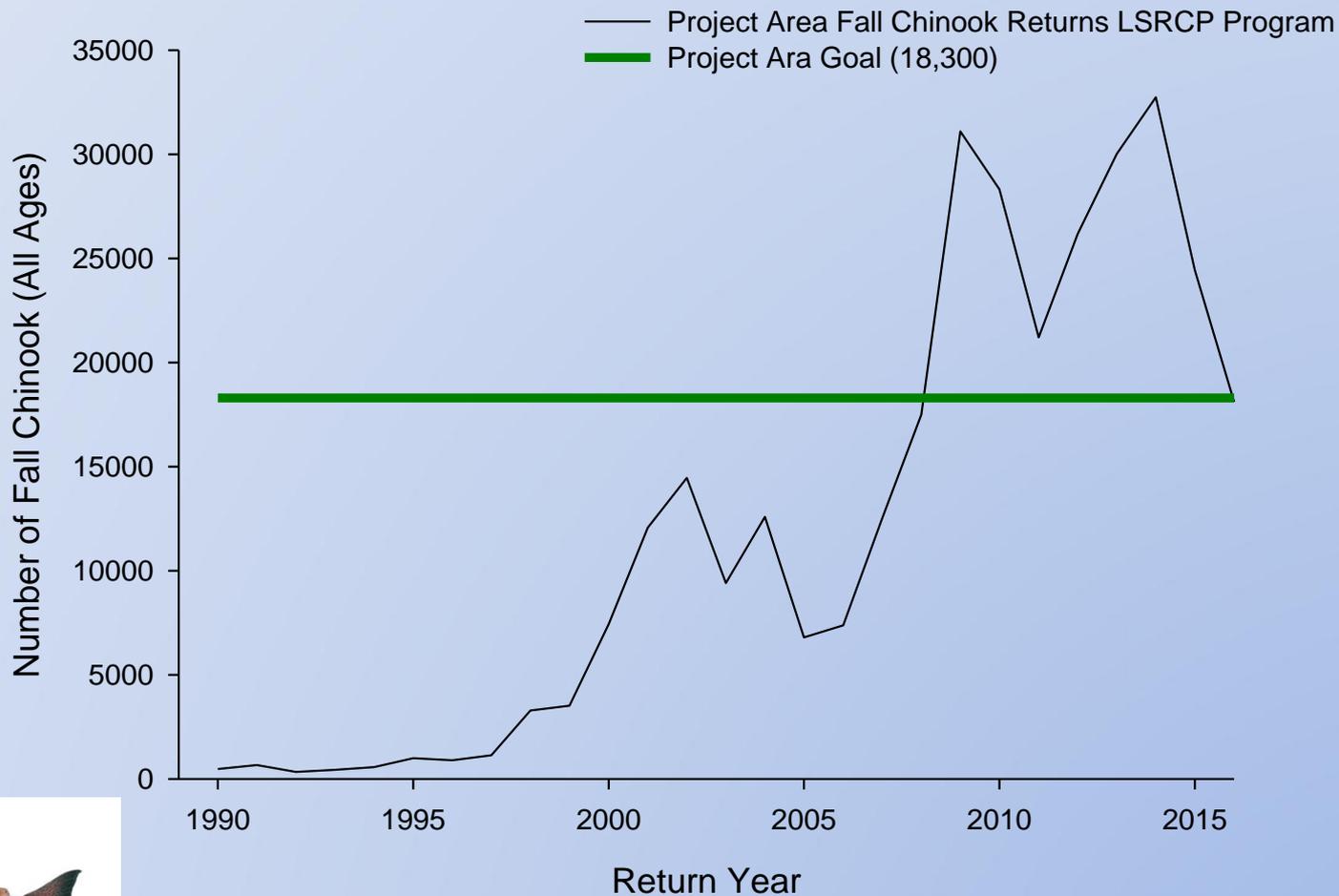
U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office

Conserving America's Fisheries



Project Area Total Adult Fall Chinook Salmon Return Years 1990-2016



© Joseph R. Tomelleri



U.S. Fish and Wildlife Service

Lower Snake River Compensation Plan Office



Conserving America's Fisheries



Summary

- Highly integrated cooperative program
- Program has changed over time, will continue to change
- Not Meeting Goals for Spring/Summer Chinook
- Meeting Goals for Steelhead, Fall Chinook



U.S. Fish and Wildlife Service

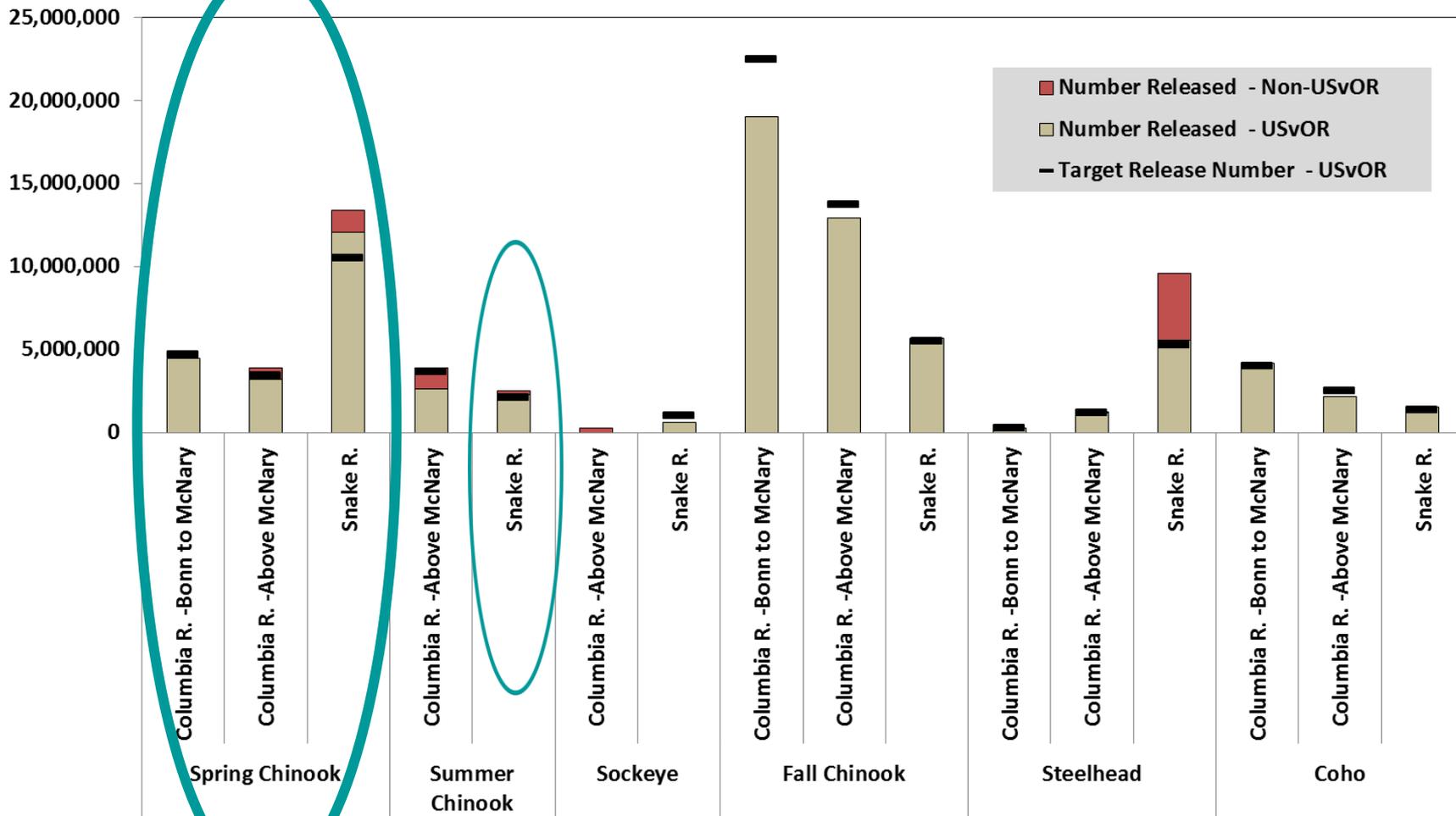
Lower Snake River Compensation Plan Office

CONSERVING
AMERICA'S
Fisheries

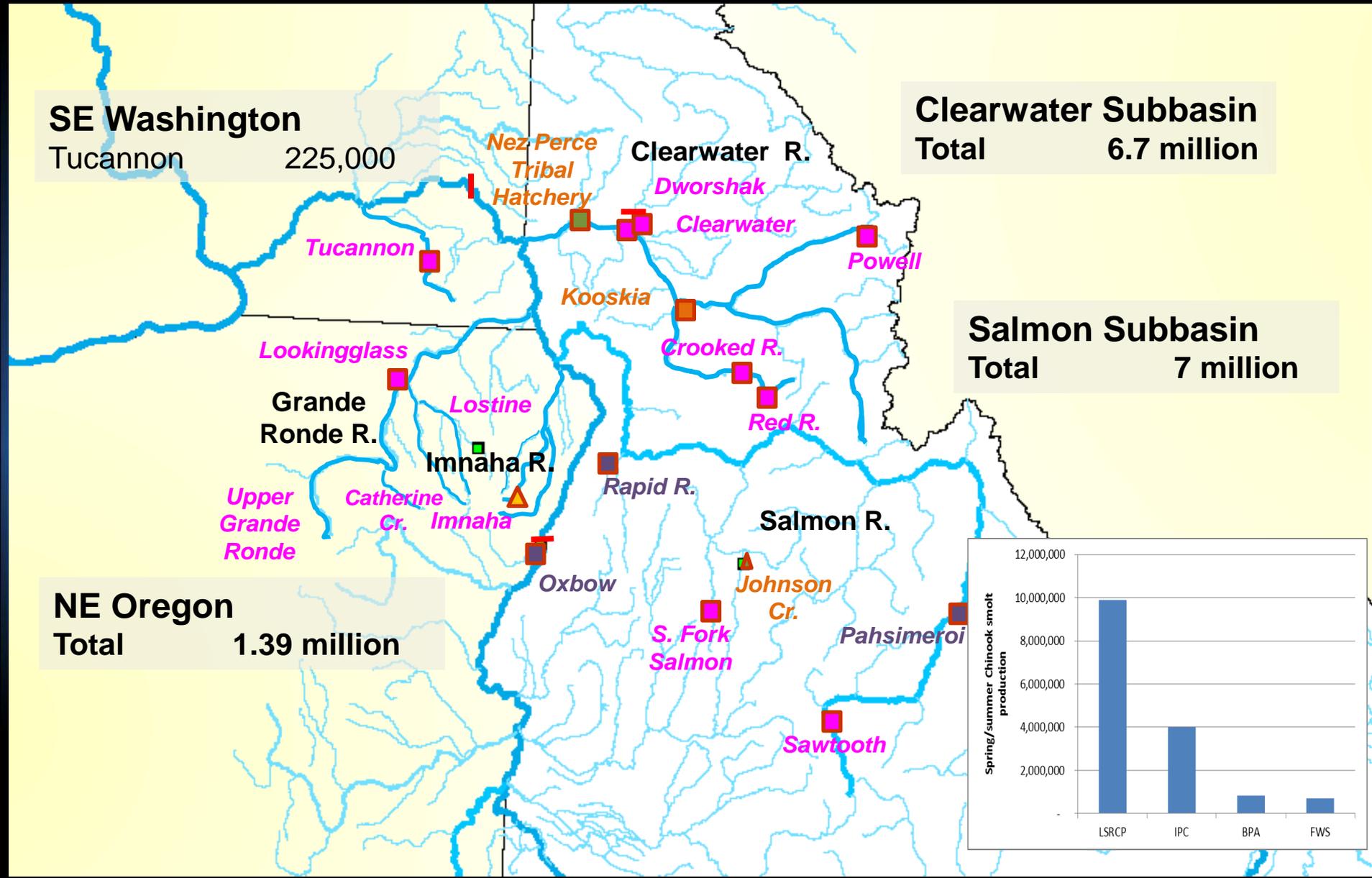
Conserving America's Fisheries



Number of Juveniles Released Upstream of Bonneville Dam in 2016



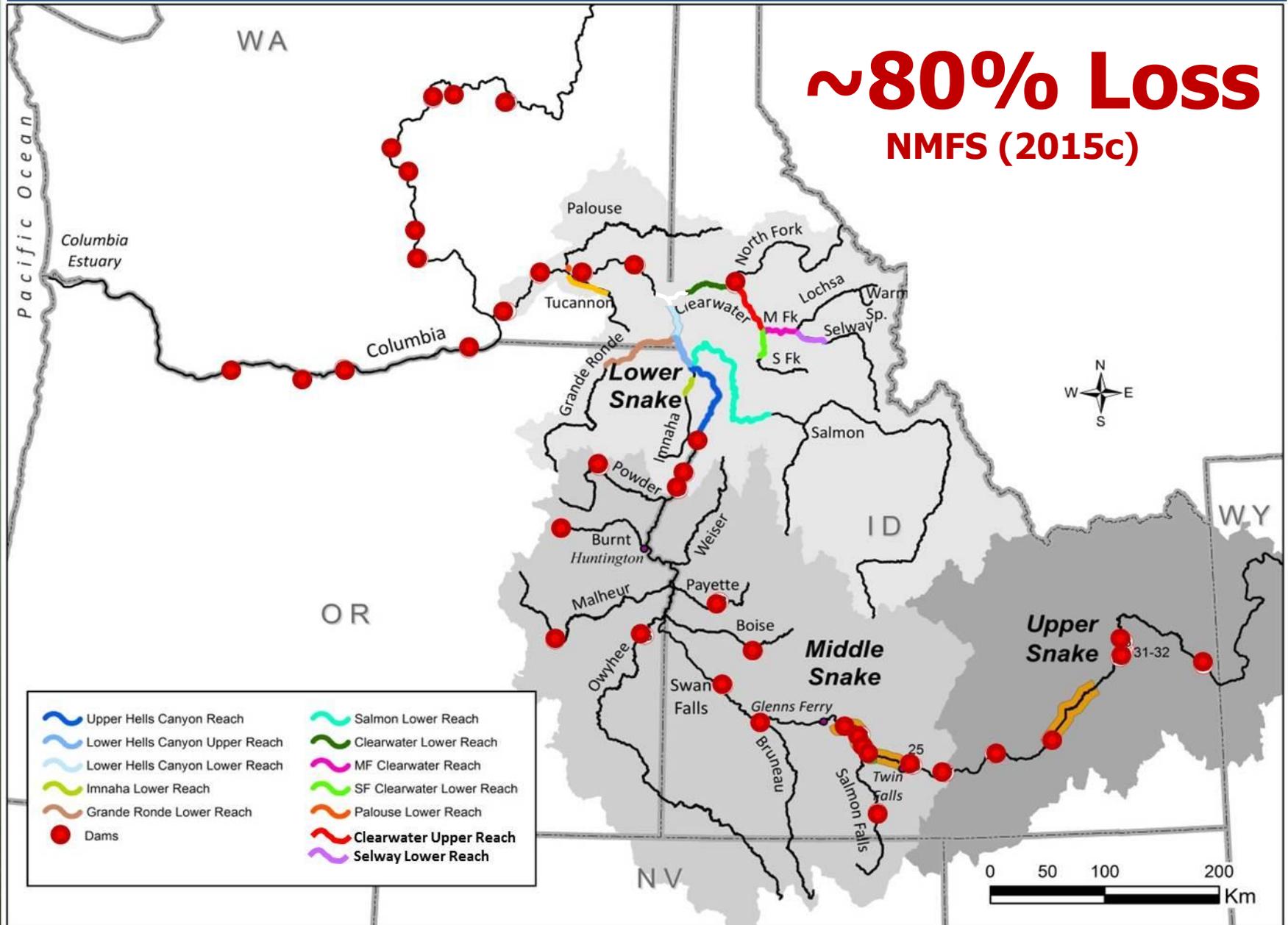
Hatchery Sp/Su Chinook Salmon Production in Snake River Basin



Release Group	Bonneville Pre-Season Forecast	Current Bonneville Estimate	Broodstock Need	Current Estimated Harvestable Fish Above LGD
Dworshak	9,311	1,598	2,620	-1,519
Kooskia	3,397	3,141	1,112	1,049
Clearwater-Selway	812	520	0	368
Clearwater-Red River	3,330	2,204	924	696
NPTH (ad-clipped)	568	200	162	-24
Powell (summers)	3,538	737	434	46
Total Clearwater River	16,850	7,687	4,818	624
Hells Canyon	2,597	733	400	141
Total Snake River	2,597	733	400	141
Rapid River	22,004	5,971	2,000	2,408
Little Salmon	899	254	0	187
Sawtooth	6,295	1,848	996	475
Yankee Fork	638	0	0	0
Pahsimeroi (summers)	982	83	670	-607
McCall SFSR (summers)	6,145	761	850	-350
Total Salmon River	36,963	8,917	4,516	2,114
Imnaha	1,232	96	210	-145
Catherine Creek	305	175	60	50
Upper Grande Ronde	912	113	160	-89
Lookingglass Creek	1,016	267	115	53
Lostine River	930	167	124	-10
Total Northeast Oregon	4,395	818	669	-141
Tucannon	488	462	156	
TOTAL	61,293	18,617	10,559	

Snake River fall Chinook

~80% Loss
NMFS (2015c)



Harvest

Pacific Salmon Treaty (Pacific Salmon Commission - PSC)
Magnuson Act (Pacific Fishery Management Council – PFMC)
U.S. vs. Oregon Management Agreement

Hydro/Habitat

Federal Columbia River
HydroPower System Biological Opinion

- Dworshak Dam
- Upper Snake (Idaho Power Complex FERC Relicensing)
- Snake/Columbia summer spill

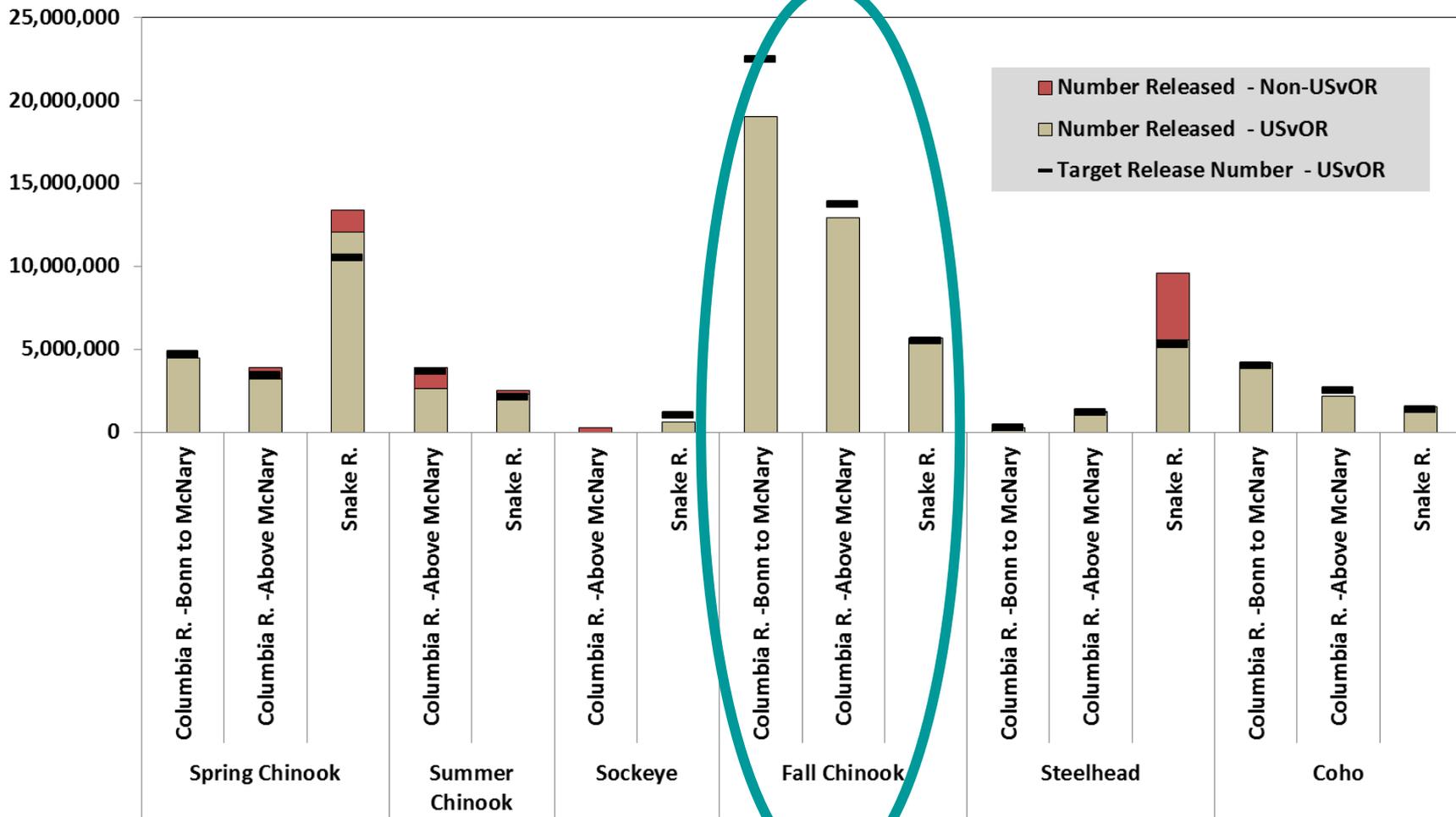
Snake River Fall Chinook Salmon

Hatchery

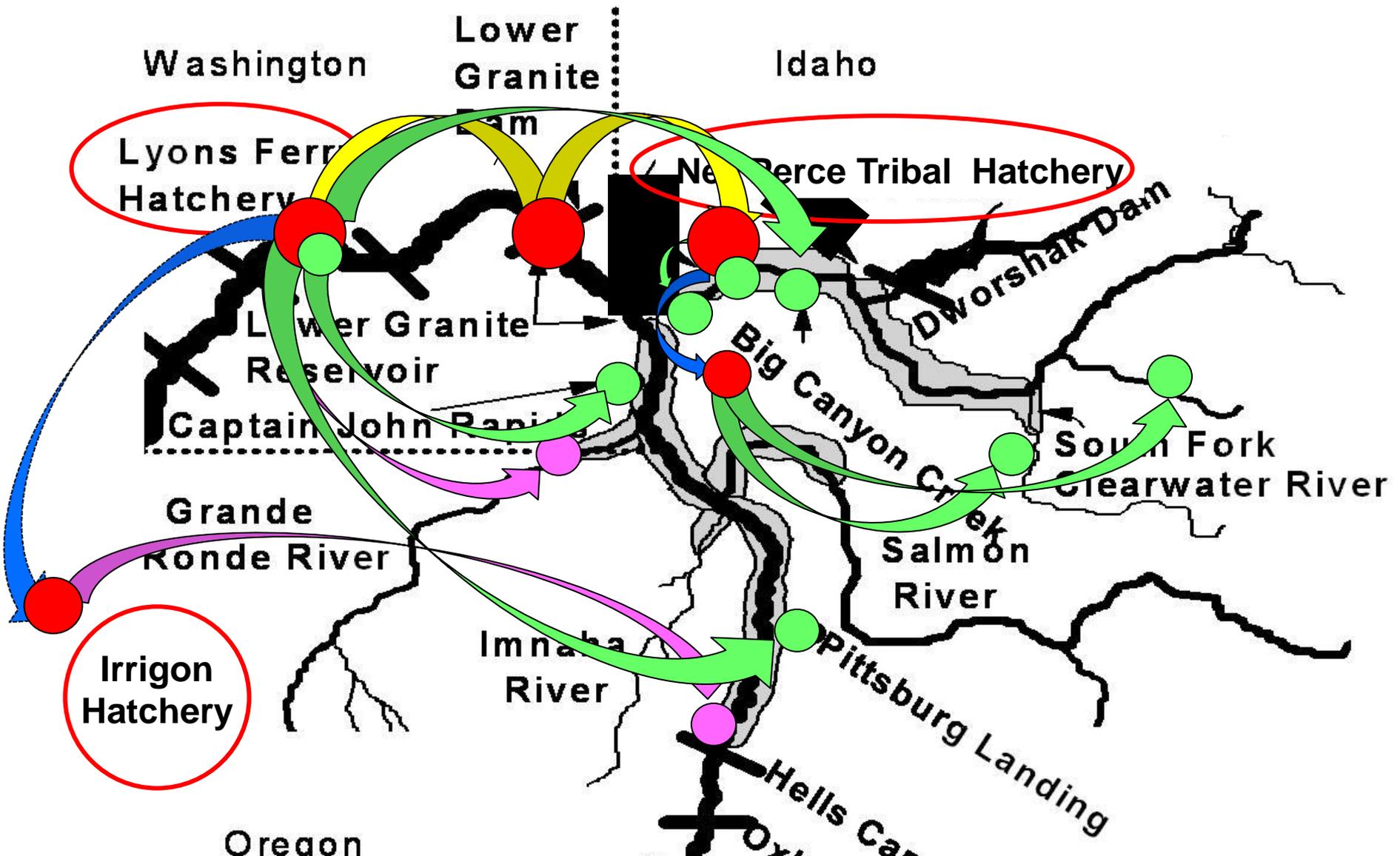
Idaho Power Company/Hells Canyon Settlement Agreement
Lower Snake River Compensation Plan – Public Law 94-587,
99-662, 103-316
Northwest Power Act
U.S. vs. Oregon Management Agreement
Columbia Basin Treaty Tribes Accords



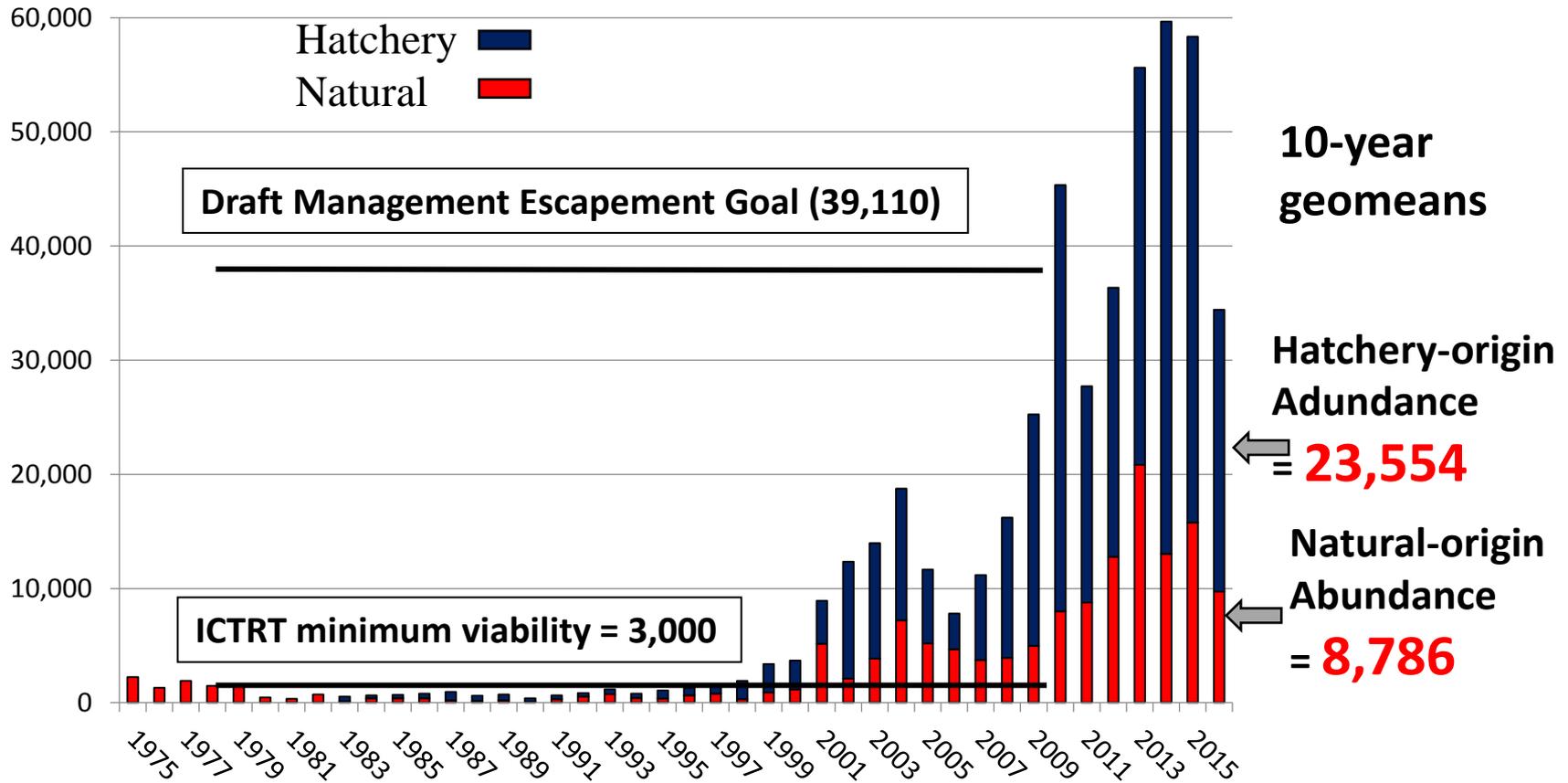
Number of Juveniles Released Upstream of Bonneville Dam in 2016



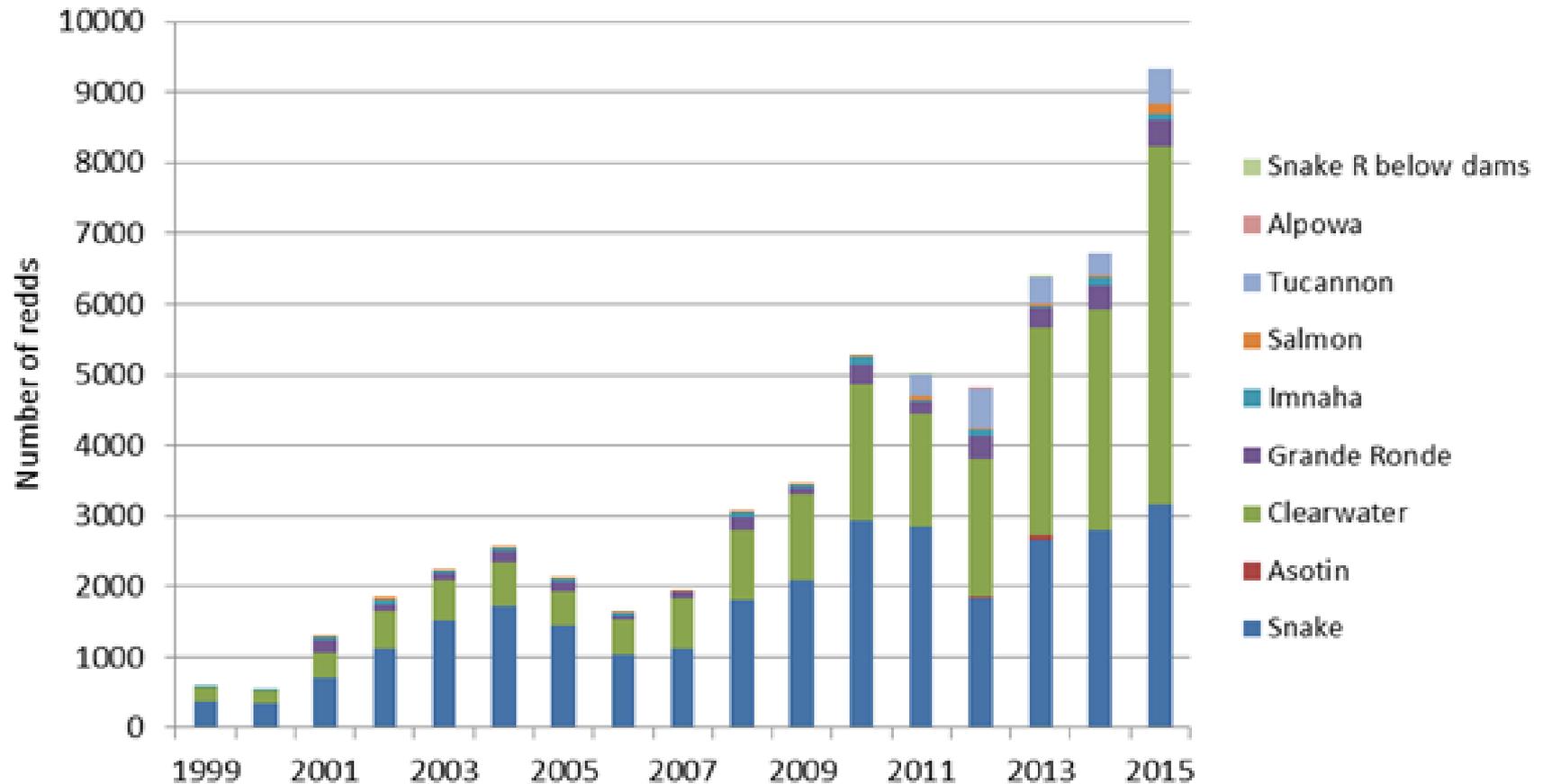
Hatchery Facilities, Rearing, and Release Locations



Adult Fall Chinook Abundance to Lower Granite Dam



Fall Chinook redd counts Snake River Basin

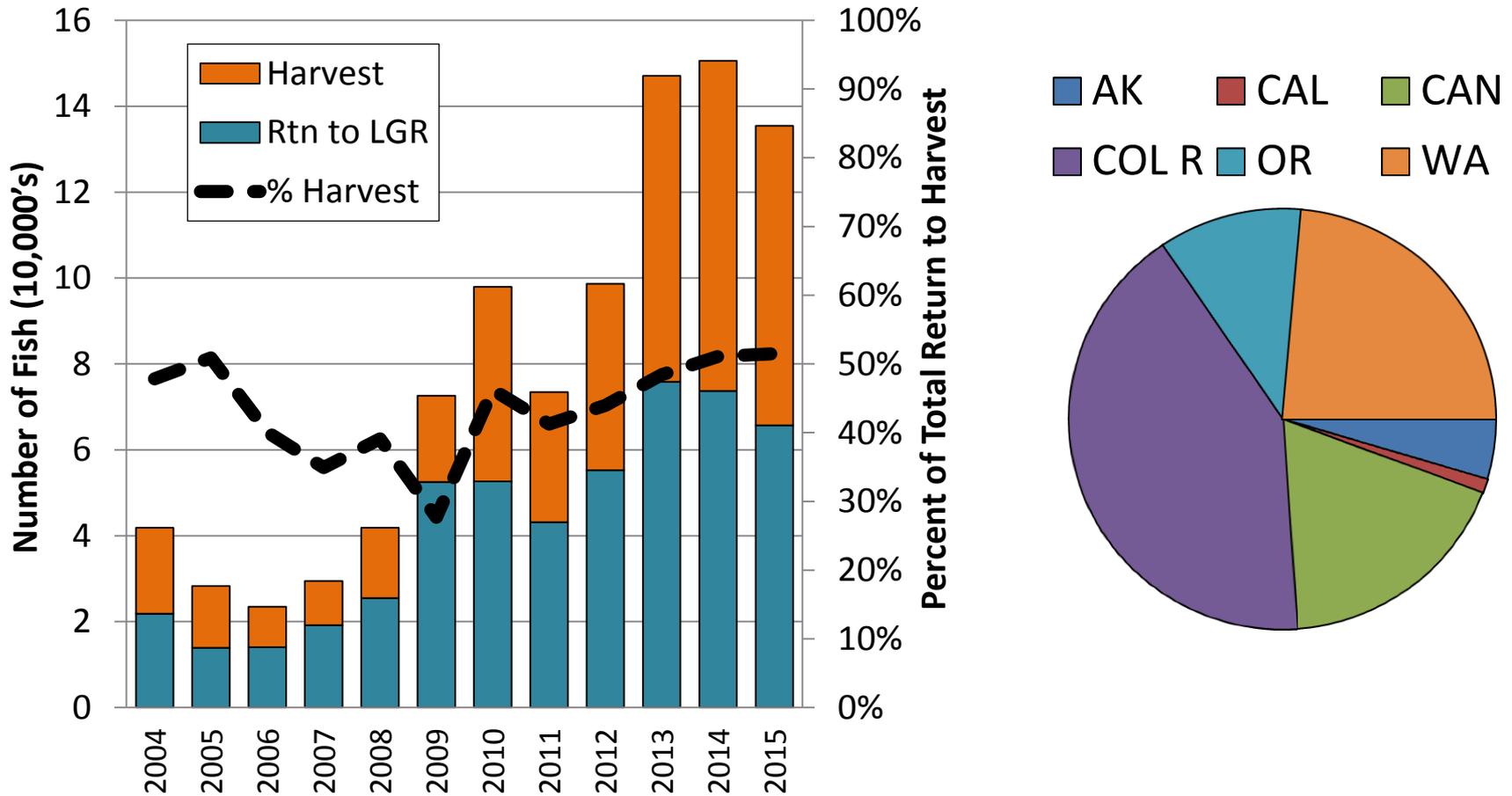


Harvest

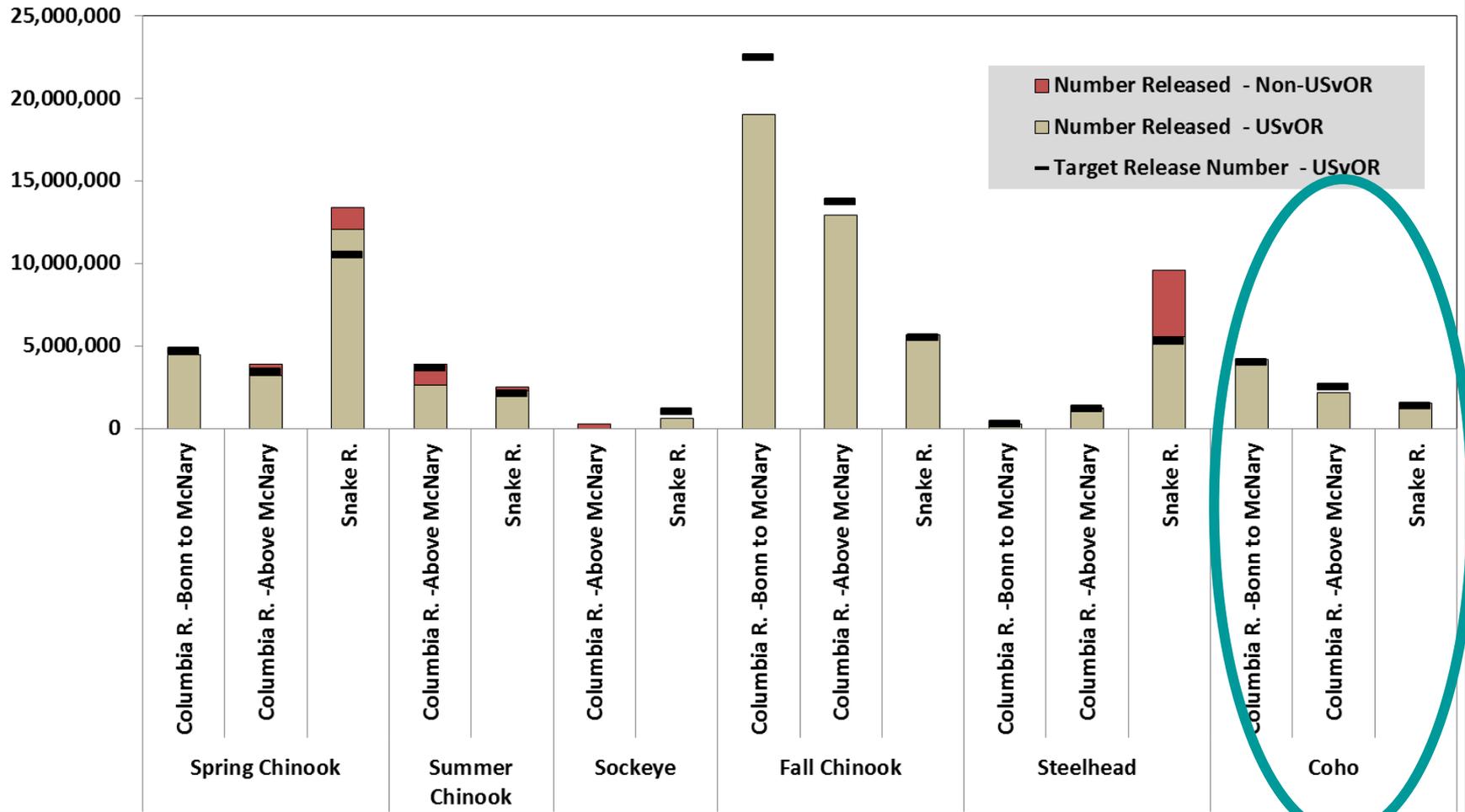


Snake River Fall Chinook Salmon

Importance of Harvest



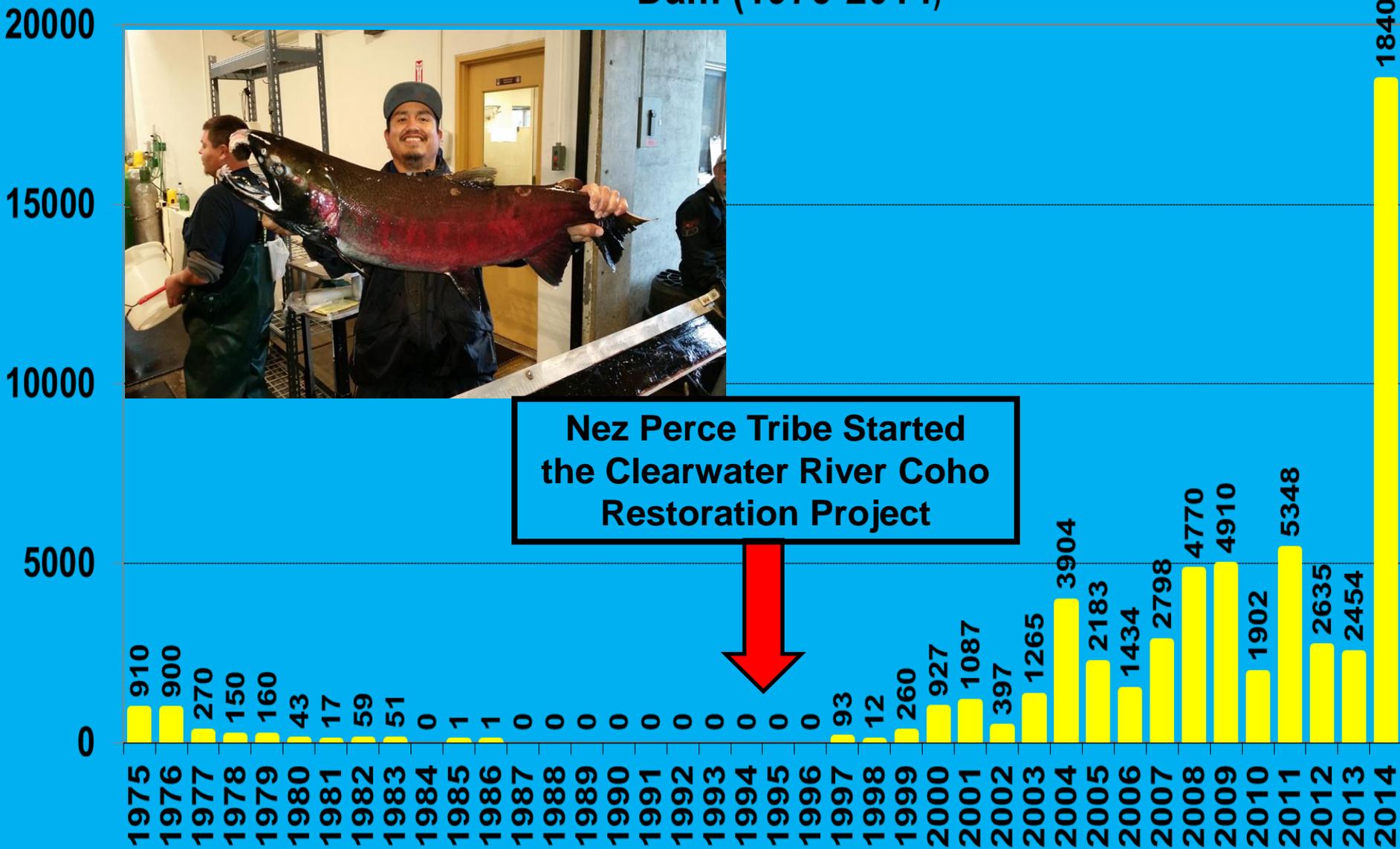
Number of Juveniles Released Upstream of Bonneville Dam in 2016

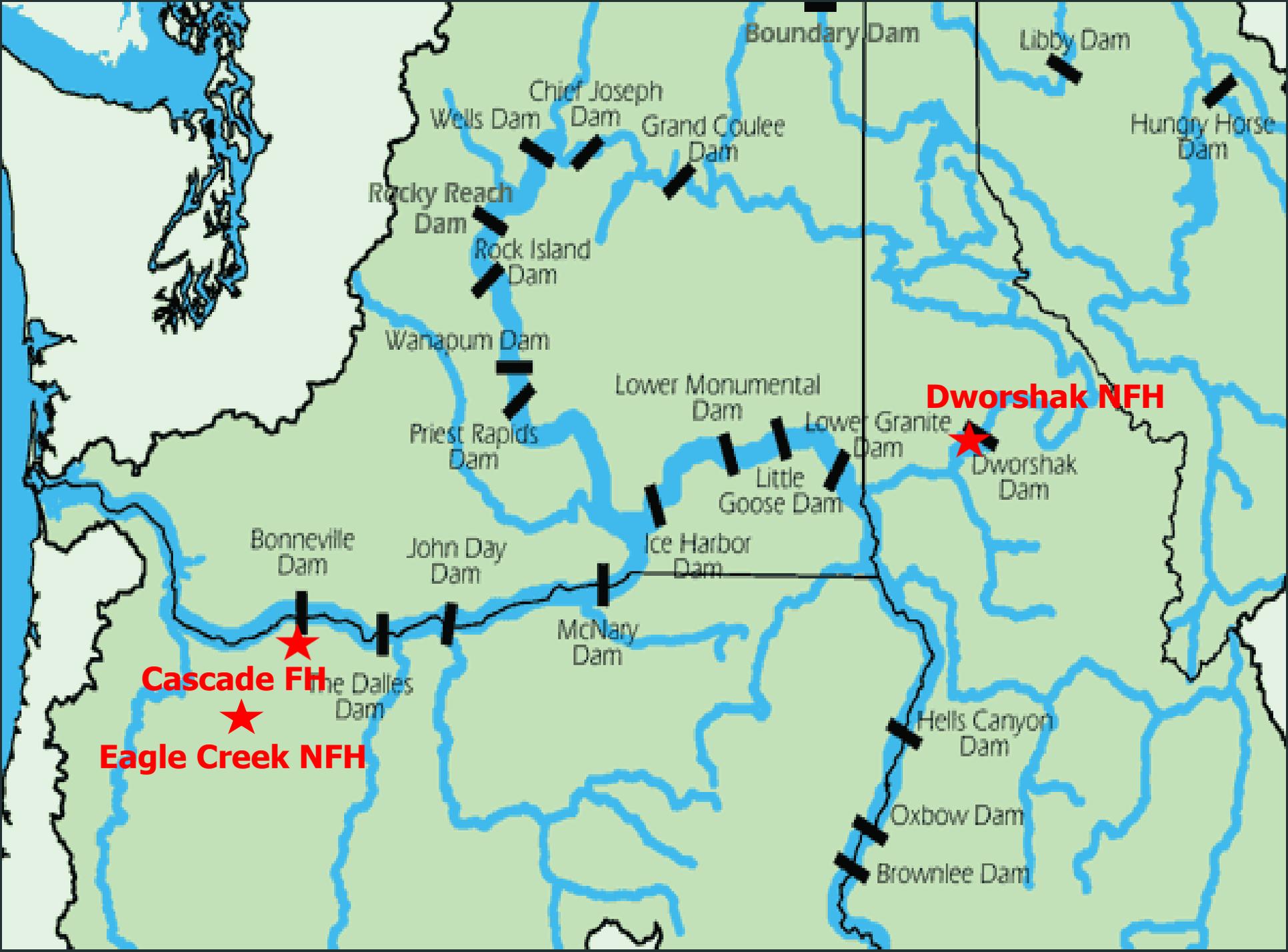


Total number of Adults and Jacks Coho over Lower Granite Dam (1975-2014)



Nez Perce Tribe Started
the Clearwater River Coho
Restoration Project





Dworshak NFH

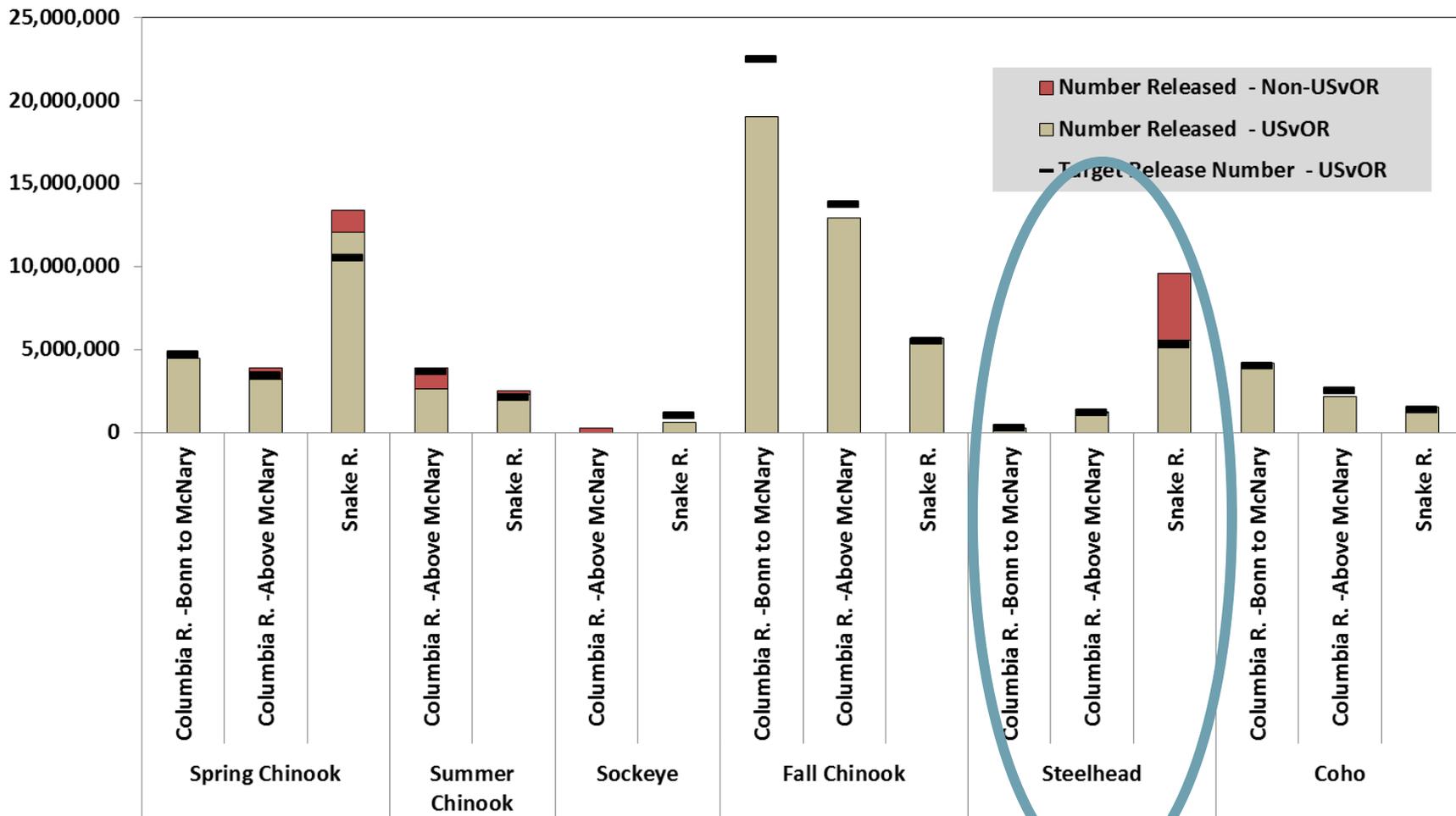
Cascade FH

Eagle Creek NFH

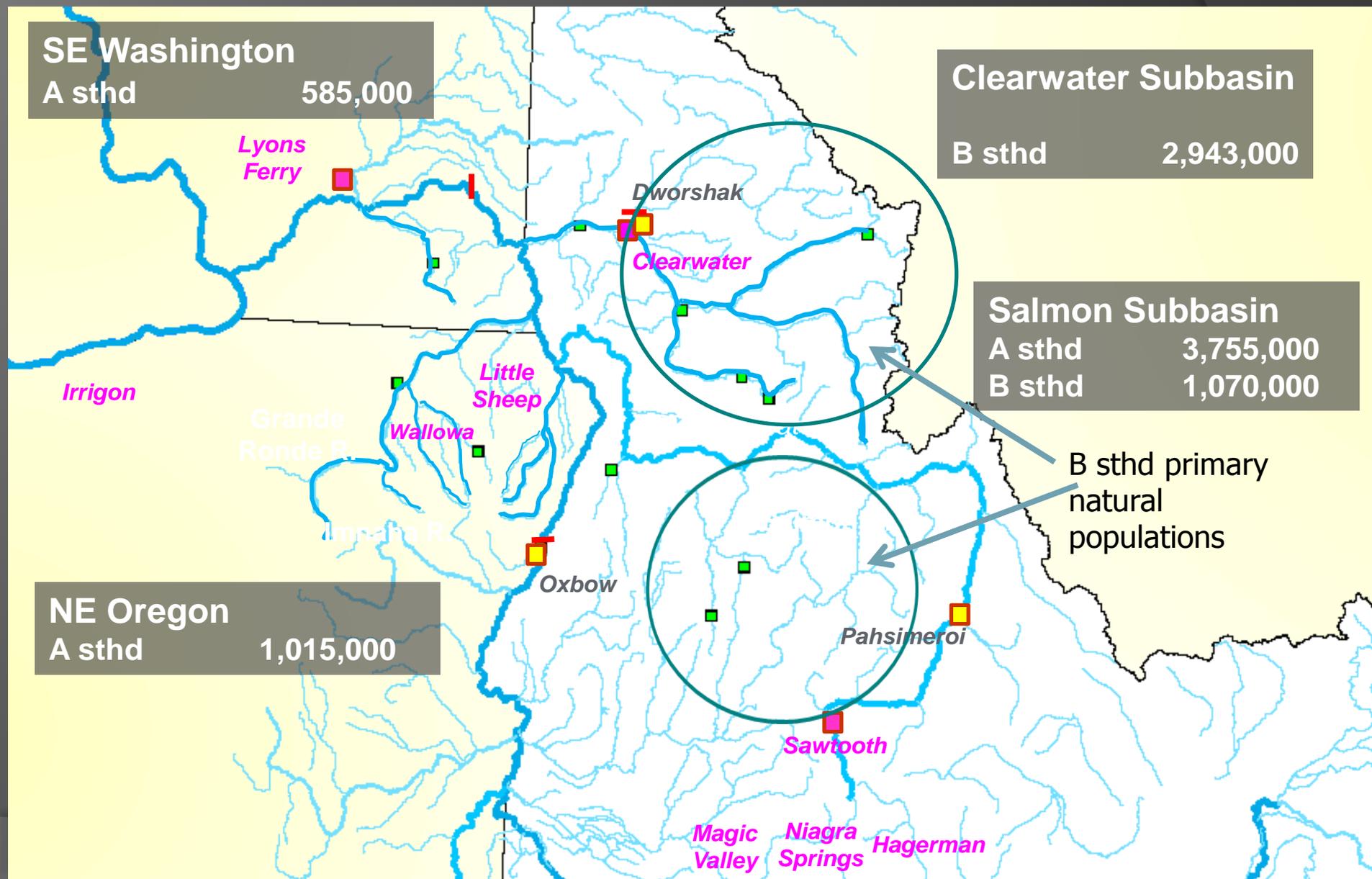
Reintroduction of coho salmon to the Lostine River in 2017
almost 50 years after extirpation



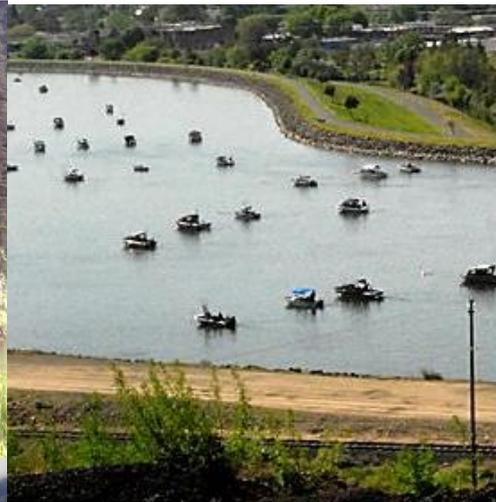
Number of Juveniles Released Upstream of Bonneville Dam in 2016



Hatchery Steelhead Production in Snake River Basin



Idaho's Anadromous Fisheries



Around 25 Million Salmon and Steelhead are Released into Idaho each Year

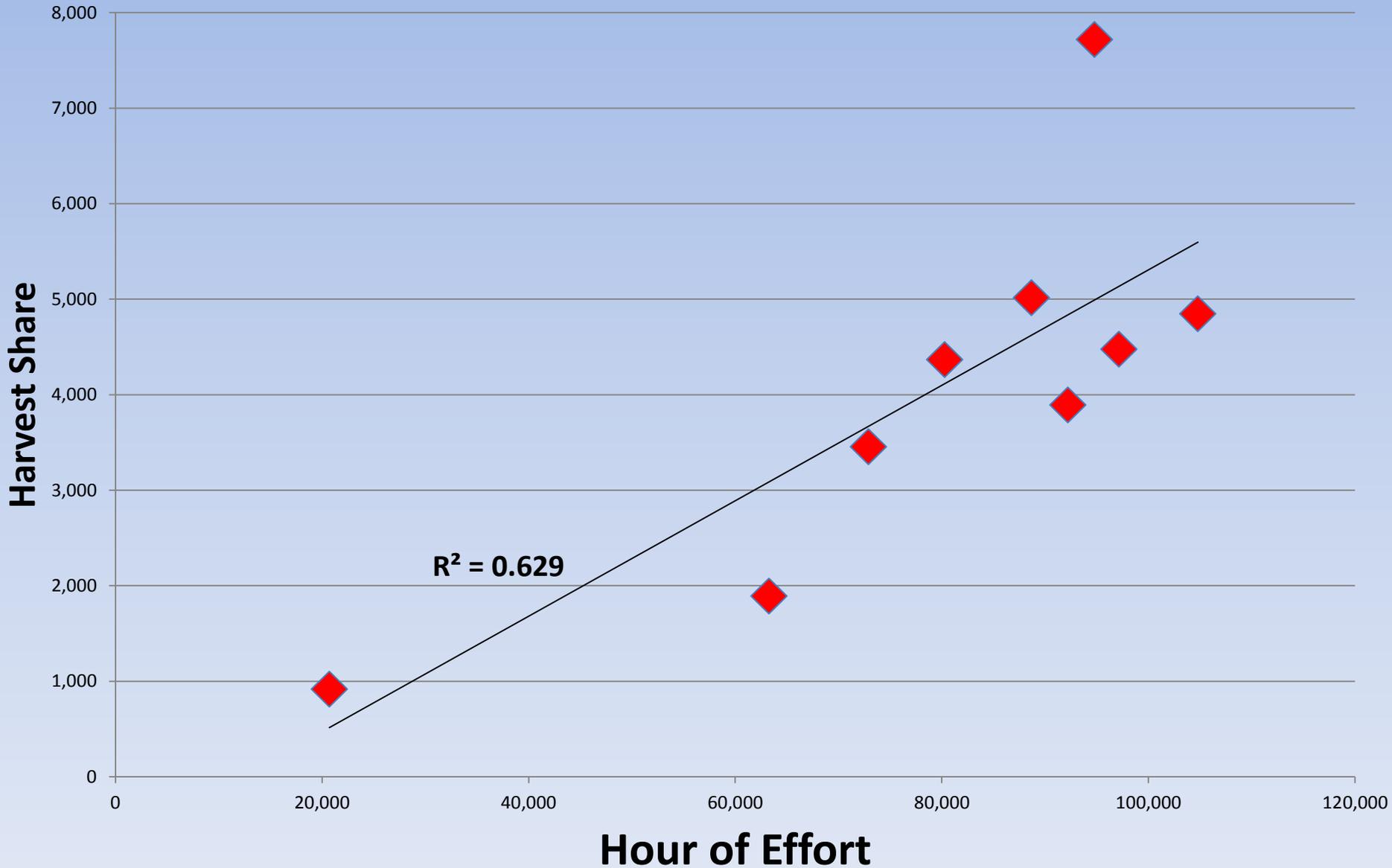


Timing of anadromous fisheries in Idaho

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Steelhead	Red	Red	Red	Red	Blue	Blue	Red	Red	Red	Red	Red	Red
Spring Chinook	Blue	Blue	Blue	Blue	Red	Red	Blue	Blue	Blue	Blue	Blue	Blue
Summer Chinook	Blue	Blue	Blue	Blue	Blue	Blue	Red	Red	Blue	Blue	Blue	Blue
Fall Chinook	Blue	Red	Red	Blue	Blue							
Coho Salmon	Blue	Red	Red	Red	Blue							

Water Body	2003		2011	
	Trips	Spending	Trips	Spending
Clearwater River	118,630	\$20,253,961	103,025	\$28,354,927
Salmon River	77,940	\$20,366,191	55,071	\$23,745,346
Snake River	44,410	\$9,157,467	41,886	\$11,956,201
Little Salmon River	34,395	\$6,780,071	18,708	\$4,540,660
South Fork Clearwater River	18,769	\$3,178,054	16,001	\$3,741,016
Total (Salmon and Steelhead)	294,144	\$59,735,744	234,691	\$72,338,150
North Fork Clearwater/Kelly	26,216	\$8,398,394	25,519	\$7,269,013
Lochsa River	11,076	\$3,041,261	6,400	\$2,341,114
Selway River	5,656	\$2,383,812	4,921	\$1,914,770
Total (Trout Rivers)	42,948	\$13,823,467	36,840	\$11,524,897
Dworshak Reservoir	41,435	\$5,925,037	21,008	\$4,130,389
Winchester Lake	21,075	\$1,260,641	15,206	\$1,499,856
Elk Creek Reservoir	8,131	\$878,353	7,882	\$862,923
Moose Creek Reservoir	7,525	\$430,529	6,174	\$624,434
Spring Valley Reservoir	16,635	\$402,381	10,507	\$382,791
Mann Lake	6,771	\$454,935	8,554	\$323,807
Soldiers Meadow Reservoir	4,636	\$228,099	2,494	\$245,876
Deer Creek Reservoir	na	na	1,175	\$75,707
Waha Lake	1,293	\$21,245	na	na
Tolo Lake	650	\$20,520	210	\$21,627
Deyo Reservoir (Opened 2012)	na	na	na	na
Total (Lowland Lakes)	66,716	\$3,696,703	52,202	\$4,037,021
High Mountain Lakes	8,186	\$2,948,202	3,909	\$1,610,228
Streams	16,665	\$1,968,810	13,326	\$1,830,036
Ponds	7,983	\$490,044	8,524	\$944,657
Grand Total	478,077	\$88,588,007	370,500	\$96,415,378

Spring Chinook Harvest Share vs Fishing Effort in the Clearwater Basin



Fall Chinook Management



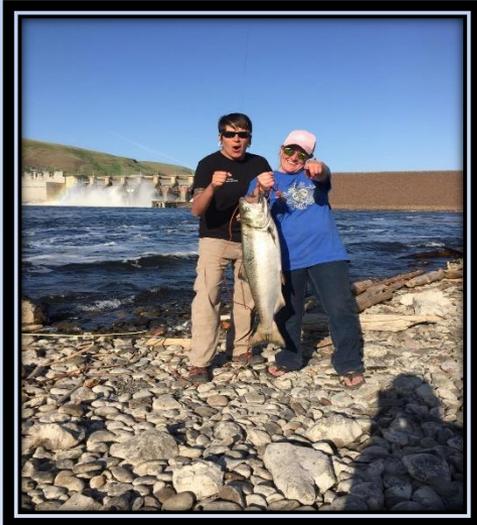
Steelhead Management





Spring Chinook

- Tucannon
- Future Plans



Steelhead

- Tucannon
- Touchet
- Grande Ronde
- Lyons Ferry Hatchery
- Walla Walla
- Asotin

